

Watson Names:

Period: _____ Table: _____

General Chemistry 4.3

Atom Building Mystery

Instructions

My Dear Watsons,

We have another mystery to solve. This time we need to go back in time about 100 years and help one of my friends, Niels Bohr. Seems, he has some ideas about the atom. He's done quite a bit of research on the Hydrogen Atom, but he's not quite sure about the how rest of the elements work. Use the Atom Building program to discover what happens when a proton is added to an element. Also discover what happens when neutrons and electrons are added. I'll show you what Niels discovered. I'll need your help to discover the rest.

Good Luck,

Sherlock Holmes

aka Mr. Aff

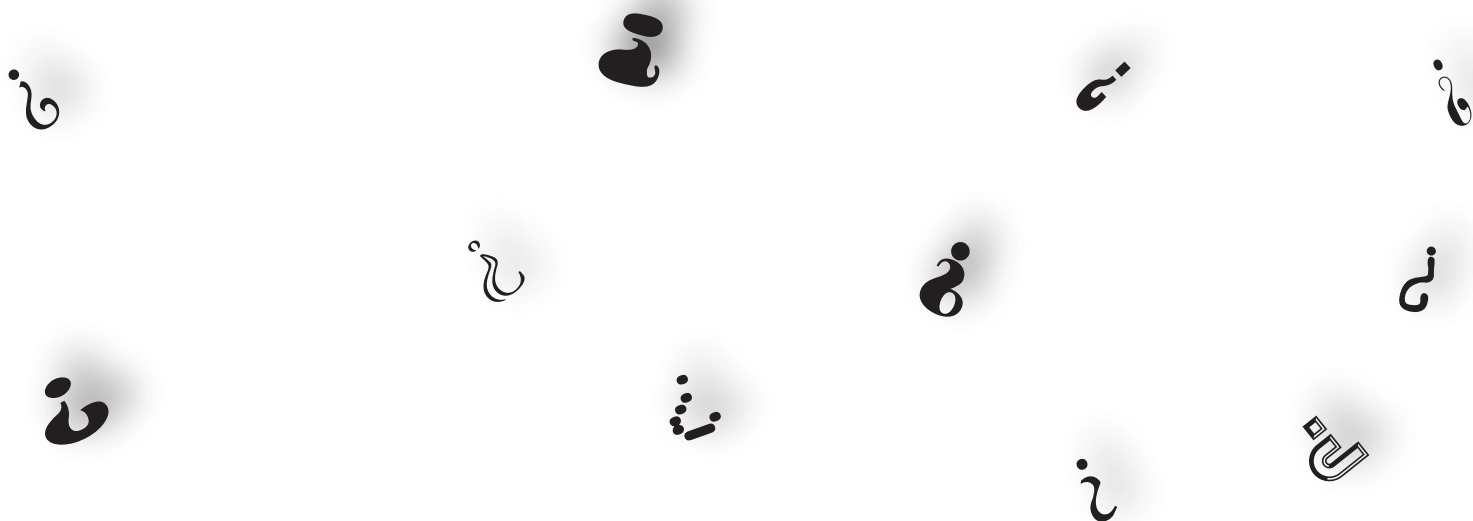
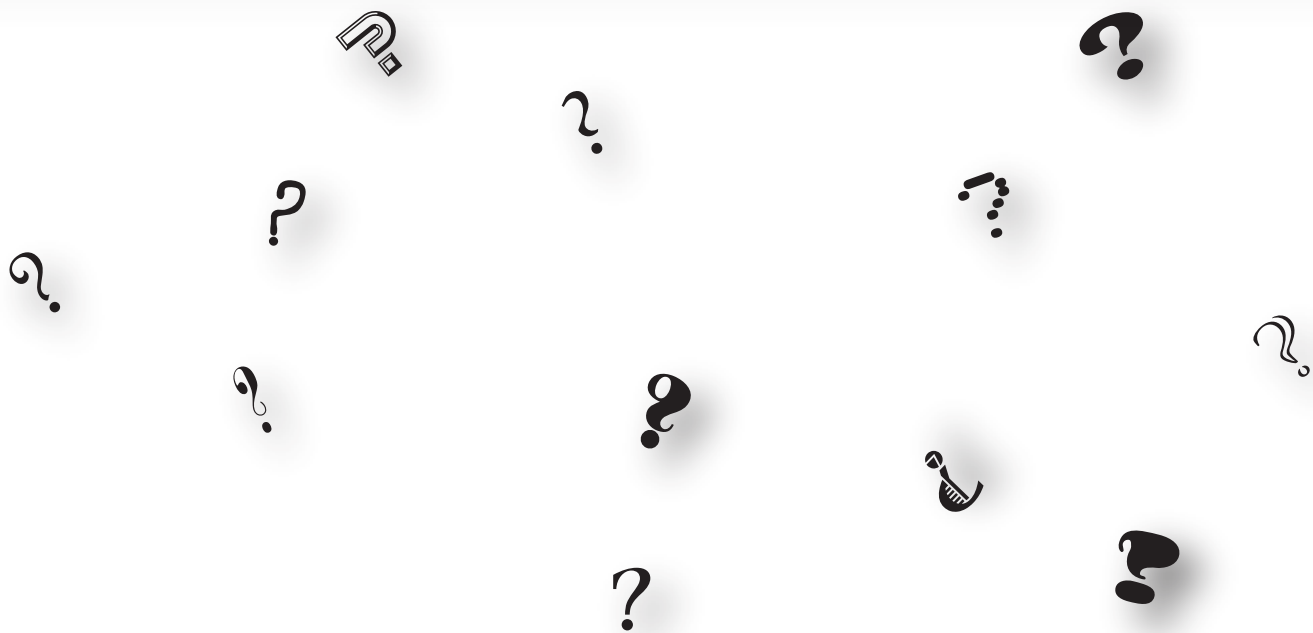
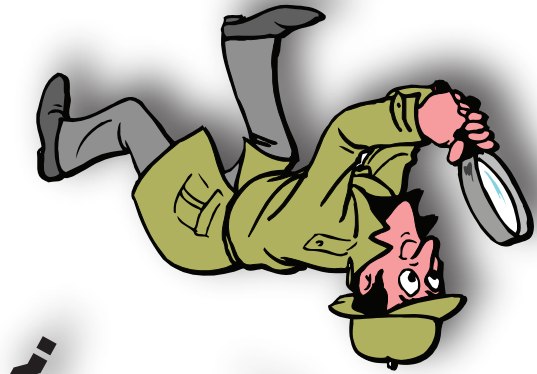
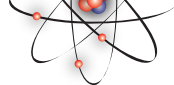
What do you know?

Let's see what you know about insulation... As a group, discuss and circle your answer on this sheet.

1. True / False Protons and Neutrons are in the nucleus of the atom.
2. True / False Electrons revolve around the nucleus like planets.
3. True / False Electrons and Neutrons attract each other.
4. True / False All atoms are the same size.
5. True / False All atoms have the same mass.
6. True / False The number of electrons affect the charge of the atom.
7. True / False The atom is mostly made-up of empty space.
8. True / False Electrons have kinetic energy.

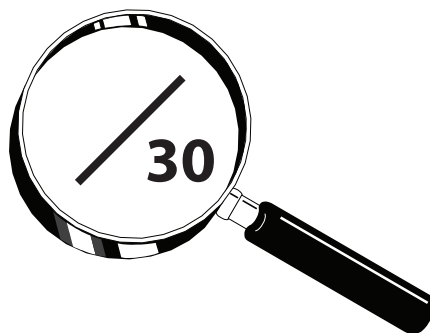
See your file for more instructions...

Atom Building Mystery



Name: _____

Period: _____ Table: _____



General Chemistry 4.3

Atom Building Mystery

A) Write Hypotheses [2 points each]

If we change the number of **protons (p⁺)** then... _____

If we change the number of **neutrons (n)** then... _____

If we change the number of **electrons (e⁻)** then... _____

B) Gather & Record Data & Observations

Follow the steps on the Atom Building Data Sheet and record your data and observations.

C) Questions [2 points each]

Review your observations and answer the following questions *in complete sentences*.

Q1. What happened when you added a **proton**?

Q2. What happened when you added or removed a **neutron**?

Q3. What happened when you added or removed an **electron**?

Q4. What happened to the electrons when you had more than 2 electrons?

Q5. Compare the Number of Protons with the Atomic Number.

Q6. What did you observe when the atoms were stable? (Compare the Mass Number to the Element's Atomic Mass)

Q7. Were there any elements that were stable with two different Mass Numbers? If so, which ones.

D) Conclusion [3 points each]

In complete sentences, write a conclusion on the other side of this paper.

Was your hypothesis correct? Why or why not.

Atom Building Data Table 1 [7 points]

Name: _____

Period: _____ Table: _____

Add (+) / Subtract (-)	Element	Nuclide Symbol	# of p ⁺	# of n	# of e ⁻	Atomic Number	Atomic Mass	Mass Number	Net Charge	Ion? +/N/-	Stable? y/n	Observation
(+) 1 p ⁺												
(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												
(-) 1 n												
(+) 1 p ⁺												
(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												
(-) 1 n												
(+) 1 p ⁺												
(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												
(-) 1 n												
(+) 1 p ⁺												
(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												

From Periodic Table

Atom Building Data Table 2

Add (+) / Subtract (-)	Element	Nuclide Symbol	# of p ⁺	# of n	# of e ⁻	Atomic Number	Atomic Mass	Mass Number	Net Charge	Ion? +/N/-	Stable? y/n	Observation
(-) 1 n												
(+) 1 p ⁺												
(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												
(-) 1 n												
(+) 1 p ⁺												
(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												
(-) 1 n												
(+) 1 p ⁺												
(+) 1 e ⁻												
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(+) 1 e ⁻												
(+) 1 n												
(+) 1 n												
(-) 1 n												
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(+) 1 e ⁻												
(+) 1 n												

From Periodic Table